



WINDOW LAYER THICKNESS INFLUENCE ON THE PHOTOELECTRICAL PROPERTIES OF ZnSe-CdTe HETEROSTRUCTURES

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ABSTRACT

Zinc selenide is one of the most promising binary compounds with the band gap of about 2.7eV at room temperature, being transparent for wavelengths higher than 460nm. The growth of ZnSe films by Close-Space-Sublimation (CSS) method is examined. It is shown that films deposited on glass substrates are polycrystalline with wurtzite-zinc-blende polytypism. The spectral dependencies ZnSe thin films on glass substrates were studied in the wavelength region of 350 nm – 1000 nm at room temperature. The heterostructures were obtained by successive deposition of ZnSe and CdTe thin films by CSS method on glass substrates coated with SnO₂ layer. The electrical and photovoltaic parameters of ZnSe-CdTe solar cells depend on the ZnSe film thickness. Optimal technological conditions of ZnSe and CdTe layers deposition were determined. Charge carrier transport mechanism in the ZnSe/CdTe heterostructures has been investigated in the temperature range of 78÷373 K.

Keywords: solar cell, heterostructures, thin films